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From the Academic Perspective:

A Good Budget for Science, But Troubles Lie Ahead

Robert M. Rosenzweig, President since 1983 of the Washington-based lobby for major research universities, the 56-member Association of American Universities, is among the capital's most seasoned participants in science-and-government politics. A political scientist, he was Vice President for Public Affairs at Stanford University from 1974-83 and is the author of Research Universities and Their Patrons *(University of California Press, 1982) and many scholarly articles. Rosenzweig spoke with SGR Editor Greenberg on November 5, a week after Congress adjourned from its long budget turmoil. Following is the text, transcribed and edited by SGR.*

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SGR. *Congress was pretty good to the research agencies.*

Rosenzweig. We got the peace dividend. It shows up in education, in NIH, in NSF to a slightly lesser degree. It showed up in Medicare and Medicaid.

SGR. *After many gloomy forecasts.*

Rosenzweig. But from now on, if Congress is serious about what it says, and that's a big qualification, we're talking about three to five years of inflation increases—essentially no real growth in budgets.

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Science Booster Loses Election—P.6

SGR. *That's not the worst possibility.*

Rosenzweig. True. But there are a couple of things that worry me a lot. One is the extent to which, particularly at NSF but elsewhere, too, there are systematic attempts being made to leverage federal dollars by getting more institutional dollars or state or business [support], or whatever. One of the messages of the fight over the Magnet Lab [awarded to Florida State University in a decision protested by MIT] is that, maybe, there's a lot more leveraging out there that they intend to get. In this case, it was [Florida] state money. That's a message that scares some places—mostly private institutions and public institutions in states that aren't very well off. Another thing that concerns me much more is the dynamic that seems to be set up by the next three to five years of budget problems. We're going to be fighting among ourselves a lot—universities and elements within universities, and universities and kindergarten through 12th grade. The domestic discretionary [budget] pool [established by the last

(Continued on Page 2)

On the Science-Policy Circuit

Federal Role in Technology Is Becoming the Hot Issue

The trendy sci-tech issue of the moment in post-Cold War Washington is how the federal government can promote the extraction of riches from industrial research. Whether it actually can is the object of strong doubts, especially at the White House. Nonetheless, the task of finding out is shaping up as one of the capital's growth industries.

The signs are to be seen in money voted by the last Congress and also on the science-advisory circuit, sometimes a seedbed for ideas that eventually spread to political circles, and at other times, a fount of stillborn recommendations. The latest creation in this sector of the advisory scene

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In Brief

Junket Time: Visits to Australia and New Zealand, November 8-23, are on the agenda of the House Science, Space, and Technology Committee, with Chairman Robert Roe (D-NJ) leading the delegation. In a Committee press release, Roe explains: "We are long past the time when science and technology issues were domestic affairs."

W. Glenn Campbell, ex-chief of the Hoover Institution, has safely made it to the National Science Board after weaseling away from a newspaper report quoting him as saying, "Frankly, I would eliminate social sciences if I had the power to do it." Challenged by Chairman Edward Kennedy, whose Senate Labor and Human Resources Committee has jurisdiction over the nomination, Campbell didn't deny he said it. But in a response to Kennedy's written questions, he stated, "I do not believe that the social sciences should be eliminated from the scientific disciplines the National Science Foundation should support."

An open meeting on "Conflicts of Interest in Clinical Evaluation of Commercial Products" will be held by the National Institutes of Health and the Alcohol, Drug Abuse, and Mental Health Administration, November 30 on the NIH Bethesda, Md., campus. An announcement discreetly notes that "Conflict of interest issues have arisen" from government-supported investigators testing drugs in which they have financial interests. For meeting registration: Ms. Bonnie Kaps, 301/402-0854.

The Gallo camp insists that with the elimination of some issues, their man has in effect been cleared of suspicions that he filched the identification of the AIDS virus (SGR, October 15). But NIH officials reply that the case is far from over. Meanwhile, Rep. John Dingell's staff is following the inquiry with acute interest.

. . . Debate About Resources Has Become Nasty

(Continued from Page 1)

Congress, along with separate pools for defense and foreign aid and related activities] is not supposed to grow for the next five years, save for inflationary increases. But everybody is going to be out to get more money. They all feel that they deserve and need more money, and they're probably right.

***SGR.** Has the fighting started?*

Rosenzweig. We see a small and particularly nasty example of it in the battle over biomedical-research funding. That's really not pleasant. The conflict here is between disciplinary societies, which assert strongly that every available dollar ought to go to research grants; on the other side are the leaders of institutions and others who believe that a more balanced funding approach is required in order to meet not only the needs of those who are here now but the needs of those who are not here now. I don't like the tone of that debate. It seems to me to have gotten nasty. You can see it in some of the responses to the Bloom Report.

[*Funding Health Sciences Research: A Strategy to Restore Balance* ($27.50, plus $2 postage), by a panel chaired by Floyd E. Bloom, Research Institute of Scripps Clinic; order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1-800-624-6242; in Washington, DC, 334-3313.]

It gave a very important message about biomedical-research funding, which is that you can't buy everything today; you have to provide for tomorrow, as well [through higher priorities for training and facilities]. That's an unwelcome message in the community.

***SGR.** How did it respond?*

Rosenzweig. Look at the way the report was received by people from FASEB [Federation of American Societies for Experimental Biology] and molecular biology and biochemistry. They looked on it as if Floyd Bloom were Benedict Arnold, come back after the Battle of West Point and attending a meeting of General Washington's general staff. That's the way they looked on it.

***SGR.** You seem to be suggesting that a bitter atmosphere is developing.*

Rosenzweig. Yes, I think so. It's at the point now where it's hard to talk about different ways of looking at priorities without being accused of some crime against the academy.

***SGR.** Have you encountered a decline of tolerance?*

Rosenzweig. Yes, I have encountered it. Do I want to name names? No.

***SGR.** Without names.*

Rosenzweig. I would identify the major disciplinary societies in the biomedical area as rigorously adhering to a point of view that no dollar ought to be taken away from the research line and every new dollar ought to go to research. And that any dollar that goes to facilities, to training, to indirect-cost recovery, whatever, is a dollar taken away from research, and that that's a crime against science. I think that is a perfectly arguable position. But if you go from that to the next step, which I think they do, which is that anybody who argues anything to the contrary is not only wrong but disloyal or an enemy—. You set up a situation in which we wind up fighting among ourselves rather than working toward the goals that we have in common.

***SGR.** Do you see Allan Bromley [Director, White House Office of Science and Technology Policy (OSTP)] having a steadying hand in dealing with these problems of priorities and federal relations with academic science?*

Rosenzweig. I think that Bromley's presence has been helpful. From all that I can see, he still has access to the higher policymaking circles in the White House, and he's quite broadly respected. I don't yet see the effect of the Office on the shape of science policy; that is, producing science policy that has some shape and coherence. I think the coming budget [now in preparation for presentation to Congress early next year] is a very important one, and will be an important test of how effective that Office has been.

***SGR.** Bromley has often said that the '92 budget would address some of the problems that have accumulated, particularly funding for small grants.*

Rosenzweig. It remains to be seen what they come up with next year, and then it remains to be seen how much follow through Bromley can generate in the political wing of the White House. That's really been the main weakness, systematically in recent years, of that operation [OSTP]. You frequently get something good out of the White House, like doubling of NSF [a budget plan endorsed by Reagan and Bush], that mythical doubling of NSF. And then very little political energy is put behind it, because it just doesn't come up visibly enough on their political screen to make it worth the effort. Well, that's what that Office has to do: brighten its image on the White House political screen.

***SGR.** There's never been a White House push for doubling NSF's budget. Nothing beyond statements and a few ceremonials.*

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A View of R&D: Big Projects and No Priorities

Analyses performed for Congress by its inhouse research services figure prominently in the shaping of legislative attitudes on technical, politically non-volatile issues. In that genre is the following, excerpted from an unpublished analysis of the R&D portions of the recently enacted federal budget for fiscal 1991 (Oct. 1, 1990-September 30, 1991). It was written by Michael E. Davey, of the Science Policy Research Division, Congressional Research Service, part of the Library of Congress.

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In reviewing the FY1991 proposed R&D budget, it appears that the Administration has sidestepped the issue of setting priorities in science by proposing significant increases for a number of largescale, multi-year R&D projects (often referred to as "big science") like the SSC [Superconducting Super Collider], the space station and Human Genome project. Although each of these projects received increases in FY1991, in each case, Congress appropriated less funding than originally requested by the Administration.

Smaller than planned increases for big science, and Federal R&D in general, is likely to continue in FY1992 and FY1993. In fact, the recently enacted FY1991 Budget Reconciliation Act provides for an annual growth rate of 4.7 percent and 3.7 percent for all non-defense discretionary funding (referred to as Domestic spending in the Act) in FY1992 and FY1993 respectively. This will place severe limits on future increases for civilian R&D funding and could force the restructuring of a number of big science projects.

It is now estimated that all of the planned big science projects will require over $60 billion to complete in the coming decade. They will also require an additional $100 billion to operate and maintain over the instruments' lifetime. Although increasing cost is an inevitable component of science, many scientists contend that the growing commitment to "big science" is coming at the expense of grants to individual investigators, the backbone of the United States research enterprise.

[Editor's note: SGR will carry notice, along with ordering information, of the Congressional Research Service final report on the fiscal 1991 budget, which is expected to be available sometime next month.]

. . . Reagan Era Will Look Like Golden Age of Science

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Rosenzweig. Yeah. And they're caught between a rock and a hard place, because of the way in which that budget comes to Congress, and the way it's put together in the White House. Republican Presidents have given more money to NSF in their budget than they have relative to the Veterans Administration and HUD [Department of Housing and Urban Development, both under the same appropriations subcommittees as NSF]. Democrats can't afford those priorities. The '91 budget was much more realistic in that respect, and may show some signs of a helpful effect of OSTP on budgetmaking. The only way that problem is going to be solved is if there's enough money in the subcommittees' allocation to take care of the reasonable needs of the Democrats' clients as well as the Republicans' clients.

SGR. *How do the mega-projects figure in this situation—the genome, Super Collider, Space Station?*

Rosenzweig. I think the fight over the genome is largely a phony war. I haven't seen any evidence that if that money weren't being spent on the genome, that it would be spent on some other research or more broadly distributed research efforts. The same thing can be said about the SSC so far; since it is confined to the Energy budget, it's less likely to be harmful to other research lines. The space station is a different kind of thing altogether. It is so enormous and it sits there in the middle of NASA, which sits there in the middle of that appropriations subcommittee that deals with NSF and EPA that that's a real problem. But it's not a science project, not that it makes any difference, because the problem is the same whether you call it science or not. It's a big public works project. I think we'll probably see more pressure for energy research. They cut fusion but passed the Clean Air Bill. There's going to be demand for clean air programs, for research to support it. If there's a department [of the Environment, as Bush has proposed], there ought to be a research office in that department. And that's going to put pressure on that same appropriations subcommittee.

SGR. *For many universities, it looks like especially difficult years are on the way.*

Rosenzweig. I think we may by the end of the 1990s look back on the 1980s as a golden age for universities. They really were in a lot of ways very good years.

SGR. *You're crediting Ronald Reagan?*

Rosenzweig. Certainly as a result of some of the Reagan policies, that's true. They were very good years for private fund raising, pretty good years for science. Not many people saw that while it was happening, because you're always more conscious of what you can't do than what you can do. And that's going to change in the '90s. Unless something happens that isn't now visible on the horizon, that's going to change. We're all going to be more constrained than we used to be.

SGR. *More people are saying that we have to reconsider*

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. . . Academe Must Learn to Thrive Without Growth

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the ways we're using research support. Erich Bloch often said that when he was head of NSF. The same theme has been sounded by the President of the National Academy of Engineering [Robert White (SGR, October 15)] and David Baltimore [President of Rockefeller University (SGR, August 1)].

Rosenzweig. I think there's a legitimate question about whether the size of the enterprise that we've built is such that the country is prepared to support it in the future, much less enlarge it. What we've experienced over the last 40 years is that the best way, in fact, sometimes the only way, to improve in quality is to grow in size. That doesn't have to be so. There are other ways of going about it, and some institutions are in the process of working through that problem and trying to figure out what it is they do best.

SGR. Universities occasionally shed a department. But that's usually very marginal stuff.

Rosenzweig. Shedding departments isn't going to happen very often, but marginal adjustments inside of institutions can be very, very signficant. That would give you the opportunity to grow. An institution that can find one or two percent of its budget each year for improvement without expansion is going to have a big advantage as time goes on. That money really does accumulate in important ways. I think we'll see more of that, and I think the places that come out ahead by the end of this decade are the ones that are smartest about making those calculations and most rigorous about enforcing them.

SGR. By freeing up money for new opportunities, at the cost of activities that have lost importance?

Rosenzweig. At least partly at the cost. There will be some growth. It's not going to be wholly a no-growth situation. But the amount of growth isn't going to be large enough to support everybody's ambitions. And the ones who figure that out first and are best at working within that constraint are going to come out ahead at the end of the decade.

SGR. How does the score look for earmarks [Congressionally directed appropriations for hometown projects]?

Rosenzweig. They had a good year. I don't keep score, but it was a bad year for the good guys. I think there's an interest among significant members of Congress in doing something to slow this process down, if we could figure out what to do. The best thing I can think of is to make some money available legitimately, through NSF or NIH. That would give those on campus and those in the Congress who don't want to play the earmark game an opportunity to do it through the regular process. But, failing that, I don't know what the answer is.

Part of the problem is that there's very little institutional memory in the Congress. So that the number of members who remember and bought into the system as it used to be has diminished very sharply. You still have somebody like Mr. Natcher [D-Ky., Chairman of the House Appropriations Subcommittee for NIH and the Department of Education], who really believes in working the system the way it used to work, and he holds the line in his Subcommittee as best he can. NIH and NSF have been clean. It's [the Departments of] Agriculture, Defense, and Energy [that have substantial funds applied to earmarked projects]. We haven't done a very good job of generating a new group of supporters who share the same values. Someday I hope somebody will take a look at all the projects that have been supported in this way and try to assess what's come of them. Was the money well spent and are they attracting research funds? That's never been looked at carefully.

An Overview of 1991 Budget

The government's civilian R&D programs were favored by the 101st Congress, while Defense-related activities suffered substantial cuts. But when it's all added up, federal R&D spending in the current fiscal year will increase by only 3 percent, which is roughly half the scientific inflation rate. That is the provisional assessment of the Science Policy Research Division of the Congressional Research Service (CRS), which was first off the mark with a comprehensive analysis of the heaps of budget details that the legislators left behind when they adjourned last month.

The CRS report, prepared by Michael E. Davey, notes that the Bush Administration had proposed an overall 7 percent increase in R&D for fiscal 1991, with the bulk of the increases concentrated in Defense and space. But when Congress got through with the budget, the report continues, the Pentagon's R&D funds were 2 percent below last year's level—mainly because of a $1.6 billion cut in the Strategic Defense Initiative—while the Department of Energy's defense-related programs were reduced by 7.2 percent below 1990. Even so, Defense remains the biggest item in the R&D budget, taking $36 billion of the $62 billion appropriated by Congress.

NSF once again fell behind the pace needed for the presidentially endorsed goal of a five-year budget doubling, to $3.2 billion, by 1993. The White House had sought a 14 percent increase for the Foundation, but the outcome was only 9.2 percent. Part of the shortfall was caused by the last-minute shift of $40 million in Antarctic logistics costs from the Pentagon to NSF, which manages research there. But whatever the cause, rapid budget growth continues to elude NSF.

The National Institutes of Health received a percentage increase the same size as NSF's. But, as usual in the affairs of NIH, Congress was piling money atop the White House request, rather than cutting back. The President's request for NIH was $7.9 billion, an increase of $354 million over last year's budget. The budget that came out of Congress provides $8.3 billion.

. . . Study of Federal Role Mandated by Congress

(Continued from Page 1)

is an academic-industrial heavyweight Panel on the Government Role in Civilian Technology, homebased at the National Academy of Sciences. The Chairman is the well-credentialed Harold Brown, Secretary of Defense under Jimmy Carter, former President of Caltech, and currently Chairman of the Foreign Policy Institute at the Johns Hopkins School of Advanced International Studies. Serving with him are 14 members, senior figures mainly from academe and industry (see box).

The creation of the Panel and its placement at the Academy was a Congressional initiative written into the 1988 trade bill. But what with rounding up financial support and assembling a membership, the first meeting wasn't held until October 12-13. Support of some $500,000 has been provided by the National Institute of Standards and Technology, the Department of Energy, NASA, and NSF.

According to an announcement from the Academy, the panel will report to the Congress and Secretary of Commerce in the fall of 1991. Topics to be addressed are:

- The virtues of the SEMATECH consortium model for "bolstering the comparative advantage of US firms in international competition."
- The industrial-research policies and practices of other countries.
- The eternal question of whether industrial technology would benefit from a civilian version of the Defense Advanced Research Projects Agency.
- The effectiveness of various federal programs to transfer technology from national laboratories to civilian industry.
- "The broad impact of cultural, economic, educational, and corporate management practices on R&D and technology commercialization efforts."

Meanwhile, Congressional Democrats, eager to get on with what the Bush-Sununu free-enterprisers disparage as "industrial policy," are not waiting upon the completion of scholarly studies. Instead, they're pumping substantial funds into several of their Reagan-era creations that have languished under presidential policies of malign neglect.

One of these, the Advanced Technology Program (ATP) at the National Institute for Standards and Technology (NIST), has been funded for this year at $36 million rather than the $10 million sought by the White House. With a still-unspent $9 million kitty from last year's appropriation, ATP's first application period ended on September 24 with 249 applications, averaging $500,000 each.

Ignored by Reagan, the program has been accorded a minimal tolerance by the Bush Administration. But its managers are ever-mindful of their political bosses' frequent declamations against government trying to "pick winners" in technology—a task that Bush and company deem beyond the powers of federal employes. Instead, ATP is intended to assist with research on "precompetitive, generic technologies," which presumably can benefit many firms.

While adding money for the ATP grant program at NIST, Congress also added additional funds for NIST's internal operations. The President sought $198 million for NIST, an increase of $34 million over last year's figure. Congress pushed the increase to $51 million, for a record total of $215 million for the NIST. Of that increase, $14 million was earmarked for particular programs, mostly in highly active fields of industrial technology, such as semiconductors, materials processing, composites, and superconductivity.

The Bush White House is deep in consultations over how to revive his politically marred image and sinking fortunes.

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Technology Panel Members

In addition to Chairman Harold Brown, members of the National Academy of Sciences Panel on the Government Role in Civilian Technology are:

John Armstrong, Vice President for Technology, IBM

C. Fred Bergsten, Director, Institute for International Economics, Washington, DC

William F. Brinkman, Executive Director for Research, Physics Division, AT&T Bell Labs

Dennis Chamot, Executive Assistant to the President, AFL-CIO Department for Professional Employes

Richard Cooper, Professor of Economics, Harvard

John Deutch, Professor of Chemistry, former Provost, MIT

Kenneth Flamm, Senior Fellow in Foreign Policy Studies, Brookings Institution

Edward A. Frieman, Director, Scripps Institution of Oceanography

Paul MacAvoy, Associate Professor, UC California, Berkeley, Haas School of Business

William J. Perry, CEO, Technology Strategies and Alliances, Menlo Park, Calif., former Under Secretary of Defense for Research and Engineering

James Brian Quinn, Professor of Business, Dartmouth College

Harry B. Schacht, CEO, Cummins Engine, Columbus, Indiana

Hubert Schoemaker, Chairman, Centocor, Malvern, Pa., and alternate, Harvey J. Berger, President, Research Division, Centocor.

Serving as Project Director is John S. Wilson, formerly with the Committee for Economic Development and the Congressional Office of Technology Assessment.

Surprise Loss for Science-Booster Doug Walgren

The science-affairs contingent on Capitol Hill came through the election unscathed—with one unanticipated exception, Rep. Doug Walgren, a Pittsburgh, Pa., Democrat who had been one of the most active members of the Science, Space, and Technology Committee. A fellow committee member who was considered to be in serious danger of defeat, Rep. George Brown (D-Calif.), won by a comfortable margin.

Never seriously challenged since he left law practice and was elected to Congress in 1976, Walgren lost to an aggressive opponent, Rick Santorum, by 80,764 to 85,251. Observers of the campaign say the outcome was determined in the final days by Santorum's vigorous anti-incumbent theme. Among other things, he accused Walgren of infrequent visits to the home district, a charge that has been the undoing of other long-seated members.

Walgren's home in affluent Potomac, Md., a suburb of Washington, was featured on TV ads as evidence that he had strayed from the home folks. Walgren was also accused of trying to boost the National Science Foundation budget above the President's request, and his wife's one-time employment with a high-powered Washington lobbying firm, Cassidy and Associates, was also introduced as something unseemly.

Starting in 1981, Walgren chaired the Subcommittee on Science, Research, and Technology, holding that post until last February, when he took the chairmanship of the Energy and Commerce Subcommittee on Commerce, Consumer Protection, and Competitiveness. The new post carried more political swat and was a move upward in House hierarchy. But Walgren retained an active membership on the Science Subcommittee, regularly participating in hearings that often drew very few of his colleagues.

Among his recent legislative achievements was the Science Scholarship Bill, which provides $5000 college scholarships for one male and one female student in each Congressional district. He was also a leading sponsor of the newly enacted Hotel, Motel, and Fire Safety Act.

Walgren's Congressional experience shows again that support of science on Capitol Hill is more a matter of faith and conviction than political advantage. No scientific organizations are out there hustling campaign money for supportive members of Congress. George Brown, who preceded Walgren as Chairman of the Science Subcommittee, once commented to SGR that scientists display a great deal of interest in Congress, except at election time. It is doubtful that many scientists who benefited from Walgren's unfailing support for NSF knew of his existence.

Technology Policy

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In industrial technology, as with most matters, the President has no heartfelt feelings. His Rasputin, Sununu, is an anti-industrial policy believer of deep faith. But many of the wounds that the President suffered in the last session of Congress are attributed to the ignorance and arrogance of his Chief of Staff, a PhD engineer with unshakable belief in his own wisdom. Reports circulate that with his halo tarnished, Sununu's influence has peaked, and that his tenure may not be invincible. If he goes, or suffers a reduction of power, the White House restraints on "industrial policy" are bound to be loosened.—DSG

Social Sciences Gain Attention

The social and behavioral sciences are making progress in another round of their eternal quest for the recognition that they earnestly feel has been denied them by Washington's granting agencies.

At the National Science Foundation, the object is a directorate of their own, rather than continued submersion within the Directorate for Biological, Behavioral, and Social Sciences (SGR, October 1). The Directorate had a budget last year of $293 million, of which $48 million is for "behavioral and neural sciences" and $33 million for "social and economic sciences." The Directorate issue is under review by a task force at the Foundation.

Meanwhile, especially strong statements in support of the behavioral approach to health care are present in the report accompanying the Senate appropriations bill for the National Institutes of Health. Under the heading "Health and Behavior," the report states, "The Committee notes that extensive information, gained over the past three decades from epidemiological studies and clinical trials, indicates the importance of behavior and lifestyle in placing an individual at risk for cardiovascular, lung, and blood disorders."

Without specifying particular sums, the report adds, in reference to the National Heart, Lung and Blood Institute, that "Increased funding is included to support research on preventing unhealthy behaviors, assessing the health effects of changes in behavior, and disseminating validated findings to health professionals and the public." The report continues: "The Committee expects the Institute to begin planning to increase these and other health and behavior research and education efforts especially in the following areas: myocardial ischemia, smoking and body weight, risk reduction in children and minorities, stress and lipid metabolism, nonpharmacologic interventions, and interactions between stress and exercise."

Similar tasks are assigned to other parts of NIH. The National Institute of Child Health and Human Development, for example, is directed to undertake research "to expand our understanding of why some children, particularly adolescents, engage in risk-taking behavior, resulting in accidents that cause personal injury, or leading to drug or alcohol abuse or to unwise sexual behavior."

More In Print: Genetic Screening in the Workplace

Conant, Bush A-Bomb Project Files Now Available on Microfilm

The World War II files of the founders of the American atomic bomb project, James B. Conant and Vannevar Bush, are now available in a microfilm edition produced by the National Archives. Since the mid-1970s, they were available only in the original copies at the Archives.

The papers span 1940-45, a period in which Bush served as Director of the Office of Scientific Research and Development and Conant was Chairman of the National Defense Research Committee. In these capacities, they were the top scientific advisers to the Roosevelt Administration.

The papers, on 14 rolls of microfilm, cover the genesis of the Manhattan Project, technical details of the bomb program, nuclear negotiations between the US and Britain and Canada, and intelligence reports on German nuclear research.

The microfilms (Microfilm Publication M1392) can be viewed at the Archives, in Washington, DC. Copies are on sale at $23 per roll in the US, $30 for foreign orders (including postage). Order from: National Archives Trust Fund Board, Washington, DC 20408; tel. 202/501-5240.

Job Changes & Appointments

Lewis L. Judd has resigned as director of the National Institute of Mental Health and returned to the University of California, San Diego, where he resumes the chairmanship of the Department of Psychiatry. Judd held the NIMH post for two years. Filling in on an acting basis is Deputy Director ***Alan Leshner***.

The White House has announced that ***Marye Anne Fox***, Professor of Chemistry at the University of Texas, Austin, has been selected for nomination to the National Science Board, the 24-member policymaking body for the National Science Foundation.

Sylvia A. Earle, President of Deep Ocean Engineering, Inc., San Leandro,Calif., has been appointed Chief Scientist of the National Oceanic and Atmospheric Administration. Her nomination was confirmed by the Senate October 26.

Roger A. Conway has been named Director of the Office of Energy at the US Department of Agriculture, where he has been head of the Productivity and Public Policy Section of the Economic Research Service since 1986.

The selection of ***Bernadine Healy*** as Director of the National Institutes of Health was announced September 9 by Health and Human Services Secretary Louis Sullivan. But as of Nov. 14, still no nomination from the White House.

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approach for detection of bulk explosives." The committee said it "could not identify any important approaches that have not been either funded or monitored by the FAA," but cautioned that the agency "must continue to maintain an R&D program that keeps abreast of state-of-the-art developments."

Order from: NAS, National Materials Advisory Board, Harris Building, Room 262, 2001 Wisconsin Ave. NW, Washington, DC 20007; tel. 202/334-3504.

Genetic Monitoring and Screening in the Workplace (GPO Stock No. 052-003-01217-1; 262 pp., $12, add 25 percent for international orders), by the Congressional Office of Technology Assessment (OTA), says extremely few industrial or business firms are examining workers for genetic vulnerabilities to occupational hazards, despite marked improvements in monitoring and screening techniques. Based on surveys that it commissioned, OTA reports, 12 Fortune 500 companies reported current use of genetic tests—little changed from a similar survey in 1982.

Monitoring and screening may be potentially beneficial for workers' health, OTA states, but they also raise problems of confidentiality, job protection, and access to health insurance. Listed as policy issues for Congress are determination of the federal role in regulation of monitoring and screening and the level and scope of federally supported research in the area. The report was requested by several House and Senate committees, a reflection of political concern with the rapidly maturing genetic technologies.

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In Print: Global R&D, Defense Basic Research, Etc.

The publications listed are obtainable as indicated—not from SGR.

Investing in the Future: An International Comparison of Government Funding of Academic and Related Research, by John Irvine, Ben R. Martin and Phoebe A. Isard (Edward Elgar Publishing Co., 277 pp., $49.95, plus $3.50 postage), more a country-by-country report and analysis than comparison of government support of academic science in the UK, Germany, France, the Netherlands, the US, and Japan.

Irvine and Martin, innovators in economic analysis of research support and productivity, repeatedly stress the difficulties of deriving comparisons from widely varying statistical systems and other differences among the nations. Reflecting their caution, the country reports are illuminating, but the international comparisons are actually few and are blurred, perhaps unavoidably, by numerous caveats and qualifications. Support for the project was provided by NSF and the UK Advisory Board for the Research Councils.

Order from: Edward Elgar Publishing Co., Old Post Road, Brookfield, Vt. 05036; tel. 802/276-3162.

Defense Basic Research Priorities: Funding and Policy Issues (90-506 SPR; 41 pp., no charge), from the Science Policy Research Division of the Congressional Research Service (CRS, part of the Library of Congress), a long-needed compilation of statistical data on the Pentagon's fiscal presence in basic research, a durable topic of ideological contention as well as hungry cries for more from academe.

DOD's basic research budget for 1990 totaled $964 million, about two-thirds of NSF's basic-research spending. The Pentagon provided about 8 percent of all federal financing for R&D in universities, but its presence was concentrated in academic engineering, for which it provided an astonishing 32 percent of the total support. As a share of Defense spending on research, development, testing, and evaluation, basic research accounted for only 2.4 percent of the total. The level has not kept up with inflation. Fifty-two percent of the Pentagon's basic research money is spent in universities, 31 percent in government laboratories, and the balance in industry, non-profits, and government contract research centers. The report, prepared by Genevieve J. Knezo, a CRS specialist in science and technology, includes a concise recent history of the ups and downs of military support for science.

Order from: Science Policy Research Division, Congressional Research Service, Library of Congress, Madison Building, Washington, DC 20540; attn. Ms. Raap; tel. 202/707-7014.

Public Lands: Limited Progress in Resource Management Planning (GAO/RCED-90-225; 35 pp., no charge), by the General Accounting Office, Congressional investigative service, report on the effects of another legacy of the anti-government Reagan government, a 50 percent reduction in the planning staff of the Bureau of Land Management, the Interior Department agency responsible for 270 million of the 724 million acres owned by the federal government (out of a national acreage of 2.3 billion). Without setting a deadline, the Federal Land Policy and Management Act of 1976 directed the Bureau to draw upland-management plans for 136 areas.

GAO reports that with 63 completed through 1989, the Bureau expects to complete the job by 1997. The GAO doesn't sound persuaded, noting that "for some of its programs, there are not enough Bureau specialists to perform even routine responsibilities much less devote the additional time required for resource management planning."

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.

The Economic Costs of Alcohol and Drug Abuse and Mental Illness: 1985 (DHHS No. ADM 90-1694; 296 pp., no charge), from the Alcohol, Drug Abuse, and Mental Health Administration, drawing on 1985 data, estimates the 1988 costs at $129 billion for mental illness, $86 billion for alcohol abuse, and $58 billion for drug abuse. Thirty-six percent of the losses were attributed to lost and reduced productivity; 24 percent to treatment costs, and 16 percent to lost earnings from premature death. The remaining losses included law-enforcement costs, auto crashes, fires, and lost productivity among crime victims. The report was produced under the direction of Dorothy Rice, UC San Francisco, who was formerly chief of the National Center for Health Statistics.

Order from: National Clearinghouse for Alcohol and Drug Information, Box 2345, Rockville, Md. 20582; tel. 1-800-729-6686.

Reducing the Risks of Explosives on Commercial Aircraft (10 pp., no charge), cleared summary of a classified report to the Federal Aviation Administration (FAA) by the Committee on Commercial Aviation Security of the National Academy of Sciences (NAS), chaired by John D. Baldeschwieler, Professor of Chemistry, Caltech. The report notes, "Given the present state of the art, a combination of sophisticated x-ray analysis and a nuclear physics method such as thermal neutron activation may offer the optimal

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